

## PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY  
(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 2087-1331	FOR FURTHER ACTION		See item 4 below
International application No. PCT/US2004/032575	International filing date ( <i>day/month/year</i> ) 04 October 2004 (04.10.2004)	Priority date ( <i>day/month/year</i> ) 08 April 2004 (08.04.2004)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant THE JOHNS HOPKINS UNIVERSITY			

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).
2. This REPORT consists of a total of 4 sheets, including this cover sheet.  
  
In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

- |                                     |              |   |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the report   |
| <input type="checkbox"/>            | Box No. II   | Priority  |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention  |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited   |
| <input type="checkbox"/>            | Box No. VII  | Certain defects in the international application  |
| <input type="checkbox"/>            | Box No. VIII | Certain observations on the international application   |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No. +41 22 338 82 70	Date of issuance of this report 11 October 2006 (11.10.2006)
	Authorized officer  Ellen Moyse  e-mail: pt05@wipo.int

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

REC'D 27 JUN 2005

**PCT**

WIPO

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To:  
FRANCIS A. COOCH  
THE JOHNS HOPKINS UNIVERSITY  
APPLIED PHYSICS LABORATORY  
OFFICE OF PATENT COUNSEL, 11100 JOHNS HOPKINS  
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LAUREL, MD 20723-6099

## WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Applicant's or agent's file reference  2087-1331		Date of mailing (day/month/year) <b>23 JUN 2005</b>
<b>FOR FURTHER ACTION</b> See paragraph 2 below		
International application No.  PCT/US04/32575	International filing date (day/month/year)  04 October 2004 (04.10.2004)	Priority date (day/month/year)  08 April 2004 (08.04.2004)
International Patent Classification (IPC) or both national classification and IPC  IPC(7): G01N 21/75 and US Cl.: 436/43		
Applicant  THE JOHNS HOPKINS UNIVERSITY		

**1. This opinion contains indications relating to the following items:**

- ☒ Box No. I      Basis of the opinion
- ☐ Box No. II      Priority
- ☐ Box No. III      Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV      Lack of unity of invention
- ☒ Box No. V      Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI      Certain documents cited
- ☐ Box No. VII      Certain defects in the international application
- ☐ Box No. VIII      Certain observations on the international application

**2. FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.  
For further options, see Form PCT/ISA/220.

**3. For further details, see notes to Form PCT/ISA/220.**

Name and mailing address of the ISA/ US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer  Fred M. Teskin  Telephone No. 571-272-1201  <div style="text-align: right;"> <i>Jean Proctor</i>  <b>Paralegal Specialist</b> </div>
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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US04/32575

**Box No. I Basis of this opinion**

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ in written format

☐ in computer readable form

c. time of filing/furnishing

☐ contained in international application as filed.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/US04/32575

Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 1-45	YES
	Claims NONE	NO
Inventive step (IS)	Claims 1-45	YES
	Claims NONE	NO
Industrial applicability (IA)	Claims 1-45	YES
	Claims NONE	NO

2. Citations and explanations:

Claims 1-22 and 34-45 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest preparing a molecularly imprinted polymer for detecting a target analyte by reacting a complex comprising a compound of the formula  $L_2M$  wherein L is the same or different and is a beta-diketone ligand containing the same or different chain transfer moiety and M is a lanthanide element, with a target analyte to provide an adduct containing the analyte; copolymerizing the adduct with a monomer and crosslinking agent to provide a polymer; and removing the target analyte from the polymer to provide a molecularly imprinted polymer, or the polymer product so prepared.

Claims 23-33 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest a polymer comprising the reaction product of a complex of the formula  $L_2M$  wherein L is the same or different and is a beta-diketone ligand containing the same or different chain transfer moiety and M is a lanthanide element, the complex being capable of binding an analyte to be detected; a monomer; and optional crosslinking agent, wherein said polymer undergoes a detectable luminescence change upon exposure to the analyte to be detected.

Claims 1-45 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.